A GUIDE TO MAKNASA

The program as revised to 1 September 1966

APPENDIX V

to Letter Report on
NASA Grant NGR 47-005-036

Prepared by

R. L. Tomlin, Jr.

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Report No. UVAL-4031-105-66U
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I.   INTRODUCTION

The program, MAKNASA, is written in the Extended ALGOL
language of the Burroughs B-5500 Data Processing System (with Disk
File hardware). It is the part of the VIR Processing System which
meets the objective of creating NASA compatible tapes from VIRS.
Continuing the general philosophy of the VIR Processing System,
MAKNASA has been designed to conform in every reasonable way to
the human user's needs for potent capability and ease of application.

In the text which follows, there is a short section of general
remarks on MAKNASA which is followed by a full discussion of the
features of MAKNASA, and of the input data preparation.

II.   GENERAL REMARKS CONCERNING MAKNASA

The NASA Linear File exists in two versions, or formats: that
associated with the 1401 system, and that suited to the 1410 computer.
In each case, there exists a search and retrieval program which can
be run on the machine in question using the associated Linear File as
input.   Using VIRS which are present on VIRTAPE and/or PARTIAL
reels, MAKNASA is capable of producing both types of Linear Files,
this in the sense that they are compatible with NASA in format, and that
they are capable of being searched by the NASA search and retrieval
programs.

MAKNASA actually has the structure of a general Linear File
maintenance program.   It is designed to copy and update reels for
either type of Linear File, as well as to produce new records from
VIRS. One feature of particular interest is the "override" capability.
This permits NASA reels to be updated in a sense similar to that for
VIRTAPE reels.   That is to say, if there exists a PRF whose VIRS
are of interest for use in producing Linear File records to replace
certain ones on an existing reel, then MAKNASA is capable of reading
both that PRF and the Linear File reel to produce records for merging.
In the merge process, Linear File records built from the PRF are used
to replace the corresponding ones on the Linear File reel, and the result
is a new, updated reel.

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Also available in MAKNASA are features to permit printer dumping of Linear File records, Linear File reel directories, IOCS tape labels, etc. MAKNASA may be summarized as follows:

Three types of "JOBS" are possible with MAKNASA and they may be described in brief terms as follows:

(I)   Mount a single NASA linear file reel and read it to dump certain information present thereon to the printer.

(II)   Mount a single NASA linear file reel and rewrite its IOCS trailer label record (with the option of requesting dumping as in (I), above).

(III)   Mount, in succession, any collection of NASA, VIRTAPE, and PARTIAL reels, and produce either one or two output tapes, either of which may be of the 1401 or of the 1410 variety. A restricted form of dumping is also permitted with this type of job.

MAKNASA is controlled by the contents of a card-image file with MFID equal to zero and FID, "SEDUCER". Given in the next section is a detailed discussion of the structure of SEDUCER. Within this discussion, all features of MAKNASA, and all means of controlling those features, are described in full.

III.   THE CARD-READER FILE, SEDUCER

(III. 1) Introduction

In the broad structural sense, SEDUCER consists of two parts: the <Lead-Part>, which comes first and is always present, and the <Recipie-Part>, which comes second and is present iff the job to be done is of type (III), above. These two parts are made up of various types of option cards, this is in the sense of the procedure, SCANOPTIONCARD.

In that which follows, what is given first is a description of the layouts of SEDUCER for each of the job types (I), (II), and (III), above. Then are given the detailed descriptions of the option cards required, there being a considerable amount of overlap between these three job types with respect to the option cards employed therein.

(III. 2) Layouts for Seducer

In all cases, SEDUCER begins with a "JOBCARD" option card. This card serves to specify the type of job to be done, and to designate the activation of whatever overall optional features are desired. The identification of the job, requests for echo listings of the contents of SEDUCER, a request for dumping in addition to the main job action, etc. , are the types of information appearing on this card. The remaining cards in the <Lead-Part> will be option cards of the "NEWREEL" and "NEW-LBL" type, and, optionally, a "DUMPHDR" card followed by dump support cards. The functions of these cards are, briefly, as follows:

Each "NEWREEL" card serves to call for the mounting of a reel of magnetic tape. In the case of VIRTAPE and PARTIAL reel input, enough information is given on the "NEWREEL" card itself to completely specify the operation. In the case of 1401 or 1410 reels, additional data concerning IOCS label information must be supplied on "NEW-LBL" option cards.

If dumping is desired in addition to the main job action, or if dumping is the main job action, then a "DUMPHDR" card must be present to specify the dumping options which are of interest. Further, in certain cases, dump support cards (option cards with ID = DISPLAY) must be supplied in order to specify the records which are to be given special handling.

In addition to the <Lead-Part> mentioned above, SEDUCER may also contain a <Recipie-Part>, which consists of a series of "RECIPIES". Each recipie serves to define a selection of records (or VIRS) to be used to create the next records written on the NASA output tape(s).

Given now are the layouts for the three job types mentioned originally:

Type (I) Layout (DUMP-ONLY)

Card(s)	Contents and Significance
<"JOBCARD" Card>	An option card with ID = JOBCARD, this card must contain the field, DUMP-ONLY, to specify that dumping is the main job action. Other fields may be used to qualify and to particularize the several options of interest in this connection (see the text for the "JOBCARD" option card, below).
<"NEWREEL" Card>	An option card with ID = NEWREEL, this card must supply information as to the reel to be used for input during this job.
<"NEW-LBL" Card(s)>	These are option cards with ID = NEW-LBL, and they serve to supply the information which is to be checked in the IOCS header label of the NASA linear file input tape.
<"DUMPHDR" Card>	An option card with ID = DUMPHDR, this card specifies the dump activities desired.
<DISPLAY" Card(s)>	These are option cards with ID = DISPLAY, and they must be present iff the option, "SPECIAL", is called for on the "DUMPHDR" card, above. They serve to specify which records are to be given the "SPECIAL" handling.

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Type (II) Layout (UPDATE-TRL)

Card(s)	Contents and Significance
<"JOBCARD" Card>	Essentially the same as for type (I), except that the field, UPDATE-TRL, must be present instead of DUMP-ONLY. Also, the field, DUMP, may be present, indicating that dumping is desired in addition to the main job action.
<"NEWREEL" Card>	This card requests mounting for the reel whose IOCS trailer label is to be rewritten.
<"NEW-LBL" Card(s)>	These cards specify the fields of information to be checked within the IOCS header label of the tape whose trailer is to be rewritten. Further, they specify what information is to appear in that new trailer label.
<"DUMPHDR" Card>	This card must be present iff the field, DUMP, appeared on the "JOBCARD" card, above. It defines the dump features of interest in this job. There is the restriction that the dump activity invoked by the option field, ERROR-DUMP, is not permitted for this job type.

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Card(s)	Contents and Significance
<"DISPLAY" Card(s)>	Same use as in type (I), above.

Type (III) Layout (MAKE-NASA)

Card(s)	Contents and Significance
<"JOBCARD" Card>	Must contain the field, MAKE-NASA, to indicate the type of job. This card may request that a single output file be written (Number "ONE"), or that two output files be written (Number "ONE" and number "TWO"). Otherwise, it is essentially the same as in jobs (I) and (II), above.
<"NEWREEL" Card>	This card serves to request mounting of the number "ONE" output tape, or, to speak more accurately, the first reel for number "ONE". Additional reels, if needed, will be called for automatically by MAKNASA.
<"NEW-LBL" Card(s)>	These cards specify IOCS label information for the number "ONE" output tape.
<"ADDTAPE" Card>	An option card with ID = ADDTAPE, this card must be present iff the number "ONE" output tape is to be positioned by spacing through a file on an existing IOCS multi-file reel before any writing is done.

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Card(s)	Contents and Significance

<"NEW-LBL" Card(s)>

These cards must be present iff they are requested by an ADDTAPE card. They specify the IOCS header label of the file to be spaced through before writing on file number "ONE".

<"NEWREEL" Card>

This card must be present iff two output files are being written. It serves to request mounting of the number "TWO" output tape, or, more accurately, the first reel of the number "TWO" output file.

<"NEW-LBL" Card(s)>

These cards must be present iff two output files are being written. They specify IOCS label information for file number "TWO" .

<"ADDTAPE" Card>

This card may be present only if file number "TWO" is being written and is to be positioned by spacing before writing begins.

<"NEW-LBL" Card(s)>

These cards must be present iff they are requested by an ADDTAPE card for file "TWO". They specify the IOCS header of the file to be spaced through before writing file "TWO".

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Card(s)	Contents and Significance
<"DUMPHDR" Card>	This card must be present iff the field, DUMP, appeared on the "JOBCARD" card, above. It serves to define the dump activities of interest for this job. There is the restriction that the dump feature invoked by the field, SPECIAL, is not permitted for a job of type (III).
<"RECIPIE"> ★ ★ ★ <"RECIPIE">	This is the <Recipie-Part> of SEDUCER, the series of recipies which define collections of records to be written on the output tape(s). The processing of these recipies is carried out in the order of their occurrence in the file, SEDUCER, and the records associated with a given recipie are written to the output tape(s) in the order in which they are defined by that recipie (see below for details).

Structure of a Recipie

Card(s)	Contents and Significance
<"RECIPIE" Card>	This is an option card with ID = RECIPIE. It supplies information as to the file(s) containing the records associated with this recipie. The permissible types are 1401, 1410, VIRTAPE, and PARTIAL reel files.

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Card(s)	Contents and Significance

<"NEWREEL" Card>

This card requests mounting for the primary input reel associated with this recipie. The secondary reel, if there is one, will always be a PARTIAL reel, some file of which will participate in an "OVERRIDE" of certain records on the primary input file (see below for details). Any request for mounting such a secondary reel must follow this "NEWREEL" card and its associated "NEW-LBL" cards, if there are any (see below).

<"NEW-LBL" Card(s)>

If the primary input file is a linear file reel for which a "NEWREEL" card appears above, then these cards must be present to indicate what information is to be checked in the IOCS header label of that reel.

<"NEWREEL" Card>

If a PARTIAL reel file (PRF) is to be used as secondary input for this recipie, and if the reel containing it has not already been mounted, then this card is necessary to effect such mounting.

<"SELECT" Card(s)>

These are option cards with ID = SELECT which must be present iff the primary input file for this recipie is not a PRF. They serve to specify the records on the

Card(s)	Contents and Significance

<"SELECT" Card(s)>
    (continued)

primary input file which are to be
used to produce output records
(for this recipie).

<"BLOTPRF" Card(s)>

These are option cards with ID = BLOTPRF
which must be present iff a PRF is involved
in the input for this recipie, either as a
primary or a secondary input file. When
used, they specify which VIRS in the
subject PRF are to be excluded from
consideration for this recipie.

If the PRF in question is the primary
input file for this recipie, then those
VIRS not excluded in the "BLOTPRF"
process are the ones which will be
used in producing the NASA output records
written in correspondence to this recipie.

In the secondary input case, those not
excluded will participate in an "OVERRIDE"
process. That is to say, among those not
excluded, any whose accession number
matches that of a VIR on the primary
input file will replace that VIR for the
purpose of producing a NASA output
record. Of course, if such a VIR on
the primary input file has not been marked
by some "SELECT" card as a record of
interest, then its replacement from the
PRF will not be used for anything.

[Note: It should be understood that once a given reel of magnetic tape has been mounted in response to some "NEWREEL" card with a recipie, then it may be accessed by subsequent recipies without the use of a "NEWREEL" card, unless, of course, the final disposition specified for it at the time of mounting is "RW/LK". For NASA and VIRTAPE reels, the disposition, "LEAVE-IN-PLACE", will make the trailing records of the file available. The final disposition for a PRF should be "CLOSE(★)", since each new recipie must open a new PRF, even if the same reel is to be used. If a different reel is to be used, then the disposition of the PRF (or any file) should be "RW/LK" (see below for details).]

(III. 3) Descriptions of the Option Cards

Given now are the formats of the various option cards. One recalls that the ID field of an option card must appear as the first non-blank field on the card, that column eighty (80) must be blank, and that all option fields on the card must be set off from one another and from the ID field by at least one blank space.

"JOBCARD" Option Card

ID Field = JOBCARD

Option	Significance
JOB-ID	This field must be present and must be followed immediately by the ID for this job.
<Job ID>	The seven-or-fewer character identification for this job.

Option	Significance
DUMP-ONLY	The presence of this field specifies that the job being described is of type (I), i. e., that dumping is the only activity of interest.
DUMP	This field, which must be used exclusively of DUMP-ONLY, above, indicates that dumping is desired in addition to the main job action.
UPDATE-TRL	This field specifies type (II) job action, i. e., rewriting an IOCS trailer label. For this type of job, the associated NEWREEL card, below, must request either that a 1401 or 1410 input tape be mounted with a write-ring. That is to say, the reel whose trailer is to be rewritten will be regarded as an input tape with a write-ring, rather than as an output tape.
MAKE-NASA	This field specifies type (III) job action, i. e., creation of NASA tape(s).
ONE=1401 (or ONE=1410)	This field may be used only if the job being described is of type (III). It specifies that the number "ONE" output file is to be of the 1401 (or 1410) variety.

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Card(s)	Significance
TWO=1401 (or TWO=1410)	This field may be present only if the job is of type (III) and an option field of the "ONE=14XX" type appears on this card. It specifies that the number "TWO" output tape is to be written, and as a 1401 (or 1410) tape.
SUMMARY	If present, this field causes one or more listings of a summary of the job action to be written on the printer. The number of such listings is determined by the next option field on this card, if there is one.
\<Integer\>	If this field is present and is a digit between 1 and 9, inclusive, then it will be used as the number of summary listings to be produced. Otherwise, one listing is provided.
ECHO	If present, this field causes one or more listings of the file, SEDUCER, to be written on the printer. The number of such listings is determined by the next field on this card, if there is one.
\<Integer\>	If this field is present and is a digit between one and nine, inclusive, then it is used as the number of echo listings to be produced. Otherwise, one listing is provided.

Card(s)	Significance
SPO	The presence of this field causes various tape handling messages to be written on the SPO. If it is not present, then such writing on the SPO is suppressed.

"NEWREEL" Option Card

ID Field = NEWREEL

Option	Significance
ONE (or TWO)	This field specifies that the reel to be mounted in response to this card is the number "ONE" (or "TWO") NASA output reel in a type (III) (i. e. , MAKE-NASA) job.
1401 (or 1410)	This field indicates that the reel to be mounted in response to this card is a 1401 (or 1410) input tape.
VIRTAPE (or PARTIAL)	This field indicates that the reel to be mounted is a VIRTAPE (or PARTIAL) input tape.
REEL	If present, this field must immediately precede the three-digit reel number for the reel to be mounted. If this field is absent, and if the reel to be mounted in

Option	Significance
REEL (continued)	response to this card is a PARTIAL or a VIRTAPE reel, then the number, 001, will be used. For NASA linear file reels, any information as to reel number should be supplied on the associated "NEW-LBL" option cards for those reels.
<Integer>	Must be a three-digit integer to be used as the reel number mentioned above. In the case of output in which more than one reel is required, MAKNASA will automatically increment the reel number and request additional output reels as needed.
TAPE (or OUTAPE)	This field specifies that the reel to be mounted is an input (or output) tape. This field must immediately precede the three-digit tape number of the reel to be mounted.
<Integer>	The three-digit tape number mentioned above.
ACCT	This field must immediately precede the five-character account number (physical tape number) of the reel to be mounted.

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Option	Significance
<Acct #>	Must be the five-character account number (physical tape number) of the reel to be mounted in response to this card.
SEEKMFL	This field is permitted only for a NASA input tape (and not then for a type (II) job). It causes the associated reel to be regarded as an IOCS multi-file reel (labeled), and to be searched for the file of interest.
WRITE-RING	A write ring will be placed on the reel to be mounted in response to this card if and only if this field is present.
AT-END	This field must immediately precede an indication of what is to be the final disposition of the reel which is to be mounted. The reference to "FINAL" here means END-OF-JOB or END-OF-RECIPIE, whichever comes first.

<Disposition Indicator>	This field may contain one of three possible values:
	      RW/LK
	      CLOSE(*)
	      LEAVE-IN-PLACE
	
	-- RW/LK causes the reel to be rewound and locked "FINALLY",

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Option	Significance
<Disposition Indicator> (continued)	i. e. , at END-OF-JOB or END-OF-RECIPIE, whichever comes first. - - CLOSE(*) is of interest only for PARTIAL reel files. It causes the file to be spaced to END-OF-FILE (if it is not already there), and then to be given a CLOSE(*). - - LEAVE-IN-PLACE causes no overt action to be taken, i. e. , the next record on the file may be accessed by the next recipie, if this is desired. It should be noted that a reel which has been given a CLOSE(*) or which has been left in place will be rewound and locked if a subsequent recipie calls for mounting of a reel of the same type. This means, of course, that the specifying of a final disposition is, in some cases, superfluous.

"ADDTAPE" Option Card

ID Field = ADDTAPE

Option	Significance
SPACE-THRU	This field must be present, and it must immediately precede an indication as to the nature of the spacing operation which is to be performed.

Option	Significance

<Spacing Code>

The possibilities for this field are:
        HDR
        XXX (a 3-BCL-digit integer)

In the case of HDR, NEW-LBL cards must follow this card to specify an IOCS header label. The associated output tape will be positioned by spacing to END-OF-FILE on the file whose header matches that so defined. The tape containing this file may be an IOCS multi-file reel, if desired.

In the XXX case, XXX must be the number of the file to be spaced through, counting from 001. Whether the files on the tape are to be regarded as labeled, unlabeled, or mixed must be specified by the appearance of LBL, ULT or MFL somewhere on this card (see below).

LBL

Ignored except in the XXX case, this field causes labeled spacing.

ULT

Ignored except in the XXX case, this field causes unlabeled spacing.

MFL

Ignored except in the XXX case, this field causes mixed spacing, i.e., the program spaces over files, making judgements in each case as to whether IOCS labels are present.

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"NEW-LBL" Option Card

ID Field = NEW-LBL

Option	Significance
NO-CHECK	The presence of this field (which is meaningless if the file being referred to by this card is an output file only) indicates that no check of IOCS header label information is to be made. If this field is absent, then the IOCS header label fields for which this card and its neighbours specify values will be checked when the file referred to by this card is opened.
PHYSICAL	This field immediately precedes the five character physical tape number of the reel referred to by this card.
\<Physical Tape No. \>	The five-character physical tape number.
SERIAL	Immediately precedes the five-character serial number of the file referred to here, i. e., by this card.
\<Serial No. \>	The five-character file serial number mentioned above.
REEL	Immediately precedes the three-digit reel number of the file here referred to.

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Option	Significance
<Integer>	The three-digit reel number.
FID-PREFIX	Immediately precedes the five-character FID prefix of the file here being referred to.
<FID Prefix>	The FID prefix mentioned above.
FORMAT	This field provides an alternative way of specifying the FID prefix. If used, it must be followed immediately by an indication as to the type of linear file tape involved.
1401 (or 1410)	Used in combination with the field, format, above, this field causes the FID prefix of the file in question to be regarded as "V1401" (or "V1410").
FID-SUFFIX	This field immediately precedes the five-character FID suffix of the file in question.
<FID Suffix>	The five-character FID suffix.
VERSION	This field provides an alternative way of specifying the FID suffix. If used, it must be followed immediately by a three-digit version number.

Option	Significance
\<Integer\>	A three-digit version number. Used in combination with the field, version, above, this field causes the FID suffix of the file in question to be regarded as "-XXX-", where XXX denotes the three digits involved.
USER-DATE	If present, this field must immediately precede the date associated with the user portion of the header label of the file which is referred to by this card. It should be noted that this, and any other item associated with the user portion, will, in the input case, cause checking of all items up to and including that item.
\<User Date\>	The user portion date, in the form MMDDYY.
USER-TYPE	If present, this field must immediately precede an indication as to the type of the user portion of the trailer label record of the file in question.
\<User Type\>	The possible values for this field are: CREATE UPDATE ADD The overall reference here is to the

Option	Significance
<User Type> (continued)	relationship of the reel in question to the other reels of the linear file of which it is (or will be) a part.
	- - CREATE indicates that the reel is one of several produced (or being produced) as a new version of a linear file.
	- - UPDATE is indicative of a reel serving (or being intended to serve) as a replacement for a reel in an existing version of a linear file.
	- - ADD refers to a reel which was (or will be) added to the end of an existing version of a linear file in order to make it into a newer (higher-numbered) version.
USER-VERSION	If used, this field must immediately precede the three-digit version number referred to in the user portion of the header label of the file in question. For a "CREATE" user portion, this will be the version number of the file being created. For "UPDATE" it is the version of the file in which this is a replacement reel. For the "ADD" case, it is the version of the file to which this reel is to be added to make a new version.

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Option	Significance
<Integer>	The three-digit user version number.
USER-HDR-NEXT	This field offers an alternative method of specifying information in the user portion of the IOCS header label of the file in question. Its presence indicates that the first forty characters of the next card in the file, SEDUCER, contain such information, in literal form. That is to say, in the output case, those forty characters will be written, and in the input case, those thru the last non-blank one will be checked.
USER-TRL-NEXT	This field is of interest in the output case only. Its presence indicates that the first forty characters of the next card in the file, SEDUCER, are to be used as the last forty characters of the trailer label of the output file in question. This field must be present for a type (II) job.
	In the case of a NASA output tape for which the user portion of the trailer is not specified in this way, MAKNASA will construct a user portion in the RLES format, i.e., the portion constructed will show the first and last accession numbers for the reel.

Option	Significance
EOF (or EOR)	Of interest in the output case only, this field causes the trailer label of the file in question to be marked with END-OF-FILE (or END-OF-REEL). In the case when more than one output reel is required for a given file, then the automatic continuation process will mark all trailers except the last with END-OF-REEL.
	The last one will be marked as specified by this field, except in the case when the automatic continuation erroneously occurs on the last record of the last recipie.
BLOCK-BASE	Of interest for output files only, this field must immediately precede a five-digit number which will be used as a block-count base. That is to say, it will be added to the total number of blocks for the current reel for the purpose of determining the value to be inserted into the block-count field of the trailer label. In the absence of this field, zero will be used as the base.
	In the case of automatic continuation for a multi-reel output file, the block-count base for each new reel will be taken to be the value inserted as the block-count field in the trailer label of the previous reel.

Option	Significance
BLOCK-BASE (continued)	In the case of a type (II) job, the block count base given here will be inserted as the block-count field itself when the file trailer in question is rewritten.
<Integer>	The five-digit block-count base.
RECORD-BASE	This field is used in a manner entirely similar to that for block-base, above, except that it applies to the record-count field of the trailer label. That is to say, it must immediately precede a seven-digit record-base which will be used analogously to the block base, above. In the absence of this field, the value, zero, will be used as the base.
	The rules in the case of automatic continuation are entirely analogous, also.
	Also by analogy with the above, in the case of a type (II) job, the record-count base given here will be inserted as the record count field itself when the rewriting of the trailer label is being done.
<Integer>	The seven-digit record-count base.

"DUMPHDR" Option Card

ID Field = DUMPHDR

Option	Significance

PRINT-LABELS — This option field causes dumping to the printer of all the header and trailer labels of the NASA tapes handled during this job.

DBL — This field causes double-spacing to be used for any actions triggered by the option fields described below. In its absence, single-spacing will be used.

It should be noted that this field may be used even if none of the options below is requested. In this case, it will have effect only if the job is of type (III) and the BLOCK-MAP or the ERROR-DUMP options are activated later by some recipie option card.

BLOCK-MAP — This field causes the printing of a BLOCK-MAP/DIRECTORY. In the type (I) or type (II) job, the Block-Map/Directory produced will be for the single reel being handled. In a type (III) job, a BLOCK-MAP/DIRECTORY is produced for each output reel.

The contents of the block-map/directory include record numbers, block numbers, record sizes, accession numbers, etc.

Option	Significance
ERROR-DUMP	This field is meaningless except in the case of a type (III) job. If used, it causes certain vectors of interest to be dumped if an error condition arises in attempting to create a NASA linear file record from a VIR.
SPECIAL	This field is permitted only for type (I) and type (II) jobs. It specifies that extensive dumping will be provided for certain records on the reel being handled. The records to be thus considered must be specified by "DISPLAY" option cards which follow this "DUMPHDR" card. The nature of this extensive dumping must be defined by the next field on this card.
<Handling Code>	The possibilities for this field are: FULL-RECORD - - FULL-RECORD indicates that the entire records designated by "DISPLAY" cards, below, are to be dumped to the printer.

"DISPLAY" Option Card

ID Field = DISPLAY

Option	Significance
ACCESSION	If used, this field must be placed just after the ID field. It specifies that

Option	Significance
ACCESSION (continued)	any record designators appearing on this card are to be interpreted as accession codes. In the absence of this field, such designators will be regarded as record numbers relative to the reel being handled, counting from one.

[Note: If is required that all the "DISPLAY" cards for a given job feature the same kind of record designators, i. e., either that they all use accession codes or that they all use relative record numbers.]

Given now are descriptions of configurations involving several option fields. It is the case that only one such configuration may be present on a single "DISPLAY" card, but a collection of such cards may use several different configurations.

For brevity in writing, the quantity, <Recd Desig>, will, throughout the following, denote an option field which is a record designator.

Option	Significance
ALL	This field indicates that all the records on the reel in question are to be given the "SPECIAL" dumping called for above.
UNTIL <Recd Desig>	This configuration specifies that all the records up to and including the one corresponding to <Recd Desig> will be given the desired "SPECIAL" dumping.

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Option	Significance
FROM <Recd Desig>	This configuration specifies that the record corresponding to <Recd Desig> and all the records which follow it are to be given the desired "SPECIAL" dumping.
<Recd Desig #1> THRU <Recd Desig #2>	This arrangement indicates that the collection of records beginning with the one corresponding to <Recd Desig #1> and ending with that corresponding to <Recd Desig #2>, inclusive, is to be given "SPECIAL" dumping.
DISCRETE <Recd Desig #1> <Recd Desig #2> ★ ★ <Recd Desig #N>	This specifies that the discrete collection of records corresponding to <Recd Desig #1>, <Recd Desig #2>, . . . <Recd Desig #N> is to be given "SPECIAL dumping. Here, N must be less than or equal to ten.
ALL-BUT <Recd Desig #1> <Recd Desig #2> ★ ★ <Recd Desig #N>	For this arrangement, all records will be given "SPECIAL" dumping except those corresponding to the discrete collection of record designators given here. As above, N must be less than or equal to ten (10).

"RECIPIE" Option Card

ID Field = RECIPIE

Option	Significance
REC-ID	This field must immediately precede the identification for this recipie.
\<Recipie ID\>	The seven-or-fewer-character identification for this recipie.
INPUT-IS	This field must immediately precede the primary input file designator for this recipie.
\<Input Designator\>	This field must specify the nature of the primary input file for this recipie. The possibilities are:

PARTIAL

VIRTAPE

1401

1410

In the case of PARTIAL, a PARTIAL reel file (PRF) will be the primary (and sole) input file. All records of it will be processed except those excluded by the use of "BLOTPRF" cards (see below).

VIRTAPE indicates that records from a VIRTAPE reel will be used as the primary input. The fields, 1401 and

Option	Significance

<Input Designator> (continued)

1410, designate the use of records from 1401 and 1410 linear file tape, respectively.   The records to be processed in THE VIRTAPE, 1401, and 1410 cases must be specified by "SELECT" cards (see below).

WITH-PRF

In the PRF primary input case, this field must be present and it must immediately precede the FID of the PRF to be used.

When this field is used in the presence of VIRTAPE, 1401, or 1410 primary input, it serves to invoke the "OVERRIDE" feature.

In the override activity, the PRF whose FID follows this field is used as a secondary input file.   Certain VIRS in this PRF may be excluded from consideration by the use of the "BLOTPRF" option cards (see below). Those remaining are used to override (replace) records of the same accession number which appear during the handling of the primary input file for this recipie.

<PRF ID>

This is the seven-or-fewer-character FID of the PRF which is to be used as either the primary or secondary input file for this recipie.

Option	Significance
BLOCK-MAP	This field activates the "BLOCK-MAP" option for the duration of the handling of this recipie.
ERROR-DUMP	This field activates the "ERROR-DUMP" option for the duration of the handling of this recipie.

"SELECT" Option Card

ID Field = SELECT

Option	Significance
ACCESSION	The use of this field on "SELECT" cards is entirely analogous to its use on "DISPLAY" cards (see above). In the absence of this field, any record designators appearing on the "SELECT" cards of this recipie will be interpreted as record numbers. These will be absolute numbers if VIRTAPE is the primary input file, and they will be record numbers relative to the current reel, otherwise.

As to the remaining options possible for "SELECT" cards, it is the case that all the configurations permitted on "DISPLAY" cards are valid for "SELECT" cards also. In the "SELECT" case, however, the records specified by such configurations will be used to produce output records (unless overriden by secondary PRF information), rather than to be given "SPECIAL" dumping.

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"BLOTPRF" Option Card

ID Field = BLOTPRF

Option	Significance
ACCESSION	The use of this field on "BLOTPRF" cards is entirely analogous to its use on "DISPLAY" and "SELECT" cards. In the absence of this field, any record designators appearing on the "BLOTPRF" cards of this recipie will be interpreted as two-digit relative position numbers.
NONE	The presence of this option field indicates that none of the VIRS of the associated PRF is to be excluded from consideration for this recipie.

As with "SELECT" cards, all the configurations permitted on "DISPLAY" cards are allowed on "BLOTPRF" cards. The records (VIRS) thus specified are those which will be excluded from consideration, i. e., treated as if they were not present in the associated PRF.

This concludes the description of the card-reader file, SEDUCER.

(III. 4) Additional Notes

(1) It is possible (although optional) to use an option card with ID field = MAXBLOK as the first card in SEDUCER. If this is done, then the fields, ONEMAX-IS and TWOMAX-IS, may appear on this card, and each such one which does appear must be followed by a seven-or-fewer digit integer. Omission of either such field will be equivalent to supplying it

followed by the integer, 6100, in the 1401 case, or by 4350 in the 1410 case. Omission of the card altogether is the same as supplying it with both ONEMAX-IS and TWOMAX-IS omitted.

The numbers supplied following ONEMAX-IS and TWOMAX-IS (or their equivalents in the case of omissions) are interpreted as the maximum number of blocks to be written on a reel, this for file number "ONE" and file number "TWO", respectively. The numbers given in the case of omissions correspond to tapes which are 2200 feet in length, and which are written at a density of 556 frames per inch.

If present, the MAXBLOK option card will be displayed on any echo listings which are provided, and its contents will be summarized if summary listings are requested. Further, the disk file copy of SEDUCER will be positioned past the MAXBLOK card before the procedure, GETNEXTDATAUNIT, is called.

(2) File opening messages for PARTIAL or VIRTAPE files will be as per the FID or reel number specified, in the usual way.

The NASA input files will be called for with MFID/FID equal to "1401"/"INPUT" or "1410"/"INPUT", depending as they apply to 1401 or 1410 type input tapes. These files will normally be IL-ED, although UL-ING will be necessary for a type (II) job.

The file number "ONE" output file will be opened with MFID/FID equal either to "FILEONE"/"(1401)" or "FILEONE"/"(1410)". This will be either an MT REQD or a NO FIL request depending as positioning is or is not desired for the output tape.

The analogous MFID/FID pairs for the number "TWO" output file are "FILETWO"/"(1401)" and "FILETWO"/"(1410)".

In all cases of a NO FIL request with respect to an output tape, UL-ING must be used.

(3) In using a PRF to override a primary input file, all VIRS should be blotted out except those which will actually override some primary record. The override handling begins by setting a pointer to correspond to the first "NON-BLOTTED" VIR, and as soon as that VIR is used for overriding, the pointer is advanced to the next such VIR. Thus, if a VIR is never used for overriding, then none of those following it can be used either.

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